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PREPARATIONS FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT ON THE BASIS OF GENERAL ASSEMBLY RESOLUTION 44/228 AND TAKING INTO ACCOUNT OTHER RELEVANT GENERAL ASSEMBLY RESOLUTIONS: CROSS-SECTORAL ISSUES

Science for sustainable development

(Section IV, chapter 3 of Agenda 21)

Report of the Secretary-General of the Conference

I. INTRODUCTION

1. The present document has been prepared in response to Preparatory Committee decision 3/2 (see also document A/CONF.151/PC/52). This chapter focuses on using the sciences 1/ for supporting the prudent management of environment and development for the daily survival and future development of humanity. The programme areas proposed herein are intended to be over-arching in order to support the specific scientific requirements identified in the other chapters of Agenda 21. The role of the sciences should be foremost to enable better formulation and selection of environment and development policies for the decision-making process. In order to fulfil this requirement, it will be essential to enhance scientific understanding, improve long-term scientific assessments, build up scientific capacities in all countries and ensure that the sciences are responsive to emerging needs.

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* A/CONF.151/PC/96.

2. Scientists 2/ are improving their understanding of likely trends such as climatic changes, growth in rates of resource consumption, population dynamics and environmental degradation. Changes in those and other areas need to be taken into account in working out long-term strategies for development. As a first step towards improving the scientific basis for these strategies, a better understanding of the "Earth System" 3/ is essential to provide a more accurate estimate of the carrying capacity of the planet and of its resilience under the many stresses placed upon it by human activities. The sciences can provide this understanding through improved networks of ground observation and through the application of modern, effective and efficient tools that are now available, such as remote-sensing devices, robotic monitoring instruments and computing and modelling capabilities. The sciences are already linking the fundamental significance of this Earth System as a life support with appropriate strategies for development that build on its continued functioning. The sciences are also playing an increasing role in improving the efficiency of the utilization of renewable and non-renewable resources. Thus, the sciences are increasingly being understood as an essential component in the search for feasible pathways towards sustainable development.

3. Scientific knowledge should be applied to support the goals of sustainable development through scientific assessments of current conditions and future prospects. Such assessments, based on existing and new approaches within the sciences, should be used in the decision-making process, as well as in the interactive processes between the sciences and policy-making. There needs to be an increased output from the sciences in order to enhance understanding and facilitate interaction between science and society. An increase in scientific capacity to achieve these goals will also be required, particularly in developing countries. Of crucial importance is the need for scientists in developing countries to participate fully in international scientific research programmes dealing with the global problems of environment and development so as to allow all countries to participate on equal footing in negotiations on global environmental and developmental issues. In the face of threats of irreversible environmental damage, lack of full scientific certainty should not be an excuse to postpone actions which are justified in their own right. The precautionary principle provides a scientifically sound basis for policies relating to complex systems that are not yet fully understood and whose consequences of disturbances cannot yet be predicted. 4/

4. The programme areas, which are in harmony with the conclusions and recommendations of ASCEND 21 (the International Conference on an Agenda for Science and Development), 5/ are:

(a) Strengthening the scientific basis for sustainable management;

(b) Enhancing scientific understanding;

(c) Improving long-term scientific assessment;

(d) Building up scientific capacity.

II. PROGRAMME AREAS

A. Strengthening the scientific basis for sustainable management

1. Basis for action

5. Sustainable development requires taking longer-term perspectives, integrating local and regional effects of global change into the development process, and using the best scientific knowledge available. Even so, the future is uncertain, and there will be surprises. Good environmental and developmental management policies must therefore be robust, seeking to keep open a range of options to ensure flexibility of response. Application of the precautionary principle is fundamental. There is often a communication gap between scientists, political policy-makers, and the public at large, particularly as articulated by non-governmental organizations. Better communication is required among scientists, and between them, decision-makers, and the general public.

2. Objectives

6. The primary objective is to achieve by the year 2000 substantial improvements in:

(a) Large-scale strengthening of the scientific and research capacities of developing countries, particularly in areas relevant to environment and development;

(b) Environmental and developmental policy formulation, building upon the best scientific knowledge and assessments, and taking into account the relative uncertainties among the various processes and options involved;

(c) The interaction between the sciences and decision-making, in particular using the precautionary principle to change the existing patterns of development and resource consumption in order to gain time for reducing uncertainty with respect to the selection among policy options;

(d) The generation and application of knowledge about the capacities of different environments and cultures in order to achieve sustained levels of development, taking into account the interrelations between global, regional and local conditions.

3. Activities

7. The following activities should be undertaken:

(a) Strengthen and design appropriate institutional mechanisms at the highest national and regional levels and within the United Nations system for ensuring a scientific basis for the improvement of environmental and developmental policy formulation consistent with long-term development goals.

Current research in this area should be broadened to include more involvement of the public in establishing long-term societal targets for formulating the development scenarios.

(b) Develop, apply and institute operational tools for sustainable development, with regard to:

(i) Quality of life indicators covering, for example, health, education, social welfare, state of the environment, and the economy;

(ii) Environmentally sound economic approaches as well as new and improved incentive structures for better resource management; 6/

(iii) Long-term environmental policy formulation, risk management and environmentally sound technology assessment. 7/

(c) Collect, analyse and monitor data to study the linkages between the state of ecosystems and the health of human communities, and to improve knowledge of the cost and benefits of different development policies and strategies in relation to health and the environment, particularly in developing countries.

(d) Conduct comparative national studies of pathways towards sustainable development, using comparable and complementary methodologies. Such studies, coordinated by an international science effort, should to a large extent involve local expertise and be conducted by multidisciplinary teams from regional networks and/or research centres. 8/

(e) Improve mechanisms for determining scientific research priorities at the national, regional and global levels to meet the needs of sustainable development. This is a research process that inevitably involves scientific judgements regarding short-term and long-term benefits and possible long-term costs and risks. It should be adaptive and responsive to perceived needs, and needs to be carried out via a transparent, "user-friendly" risk evaluation methodology which has not yet been developed.

(f) Develop methods to link the findings of the established sciences with the indigenous knowledge of different cultures. The methods should be tested using pilot studies. They should be developed at the local level and should concentrate on the links between the traditional knowledge of indigenous groups and corresponding current "advanced science", with particular focus on disseminating and applying the results towards environmental protection and sustainable development.

4. Means of implementation

8. Financing and cost evaluation: this programme area will cost about US$ 40 million per year over the 1993-2000 period, which includes US$ 15 million in international assistance.

9. Scientific and technological means include the following:

(a) Support new scientific research priority programmes at the national, subregional, regional and global levels and increase interdisciplinary research related to environmental degradation and rehabilitation;

(b) Set up demonstration models of different types (e.g., socio-economic, environmental conditions) to study methodology and formulate guidelines;

(c) Support research objectives by developing a relative risk evaluation method for ranking research priorities in importance.

B. Enhancing scientific understanding

1. Basis for action

10. In order to promote sustainable development a thorough knowledge is required of the Earth's carrying capacity, including the processes that could either impair or enhance its ability to support life. The global environment is changing more rapidly than at any time in recent centuries; as a result, surprises must be expected, and the next century may see environmental conditions unprecedented in the last 10 millennia. At the same time, human consumption of energy, water and other renewable resources is increasing, on both a total and a per capita basis, and serious shortages may ensue in many parts of the world even if environmental conditions were to remain unchanged. Social processes are subject to multiple variations across time and space, regions and culture: they both affect and are influenced by changing environmental conditions. Human factors are key driving forces among these intricate sets of relationships and exert their influence directly on global change. Therefore, study of the human dimensions of the causes and consequences of environmental change and of more sustainable development paths is essential.

2. Objectives

11. A key objective is to improve and increase the development of analytical and predictive tools to enhance scientific understanding of:

(a) The ways in which the carrying capacity of the Earth is conditioned by its natural systems, namely the biogeochemical cycles, the atmosphere-ocean-biosphere-cryosphere climate system, the biosphere and biodiversity, the food and fibre system and the land-freshwater system;

(b) The ways in which the Earth's natural systems are increasingly being transformed by human actions, both deliberate and inadvertent, and the impact and consequences of these transformations;

(c) The population dynamics, socio-economic systems and per capita consumption patterns that drive the anthropogenic changes in the Earth's natural systems. 9/

3. Activities

12. The following activities should be undertaken:

(a) Develop an expanded monitoring network to describe the global biogeochemical cycles and test hypotheses regarding their behaviour, and improve research into the interactions among the various global cycles and their consequences at the national and regional levels as guides to tolerance and vulnerability. 10/

(b) Support national and international observation and research programmes in global atmospheric chemistry and the sources and sinks of greenhouse gases, and ensure that the results are presented in a publicly accessible and intelligible form.

(c) Support national and international research programmes 11/ on terrestrial systems, establish a global database of their components, expand corresponding systems for monitoring their changing state and enhance predictive modelling of the Earth system and its subsystems, including modelling of the functioning of these systems under different intensities of human impact.

(d) Develop the capacity for predicting the responses of terrestrial, freshwater, coastal and marine ecosystems and biodiversity to short- and long-term perturbations of the environment. Develop further restoration ecology. Study the role of biodiversity and the loss of species in the functioning of ecosystems and the global life support system. 12/

(e) Initiate a global observing system of parameters needed for the rational management of coastal zone resources and significantly expand freshwater quantity/quality monitoring systems, particularly in developing countries.

(f) Research, develop and apply systems and technology that automatically monitor, record and transmit data and information to databases in order to monitor marine, terrestrial and atmospheric systems and provide advance warning of natural disasters.

(g) Enhance the contribution of the engineering sciences to multidisciplinary research programmes on the Earth system, in particular with regard to increasing preparedness and reducing negative effects of major natural disasters.

(h) Intensify research on relationships among population dynamics, consumption patterns and environmental degradation at the national, regional and global levels. 13/

4. Means of implementation

13. Financing and cost evaluation: this programme area, which is primarily related to global environmental issues, will cost about US$ 1 billion per year over the period 1993-2000, of which about US$ 750 million should be in international financing, building on ongoing 14/ and newly started programmes and activities.

14. Scientific and technological means include the following:

(a) Support the relevant national research activities of academia, research institutes and non-governmental organizations, ensuring their active participation in regional and global programmes, particularly in developing countries;

(b) Use enabling systems and technologies, such as supercomputers, space-based observational technology, Earth- and ocean-based observational technologies, data management and database technologies. 15/

15. Other means include finding ways of turning arms reduction efforts into environmental security efforts.

C. Improving long-term scientific assessment

1. Basis for action

16. Meeting scientific research needs in the environment-development field is only the first step in the support that the sciences can provide for the sustainable development process. The knowledge acquired must then be used to provide scientific assessments (audits) of the current status and for a range of possible future conditions. The factors of most importance to a majority of people are health, quality of life, and socio-economic and environmental security. This implies that the biosphere must be maintained in a healthy state and that losses of biodiversity must be slowed down. Although many of the long-term environmental changes that are likely to affect people and the biosphere are global in scale, the changes experienced as the most important ones are those at the national and local levels. At the same time, human activities at local and regional levels often contribute to global threats, e.g. stratospheric ozone depletion. Thus, scientific assessments and projections are required at the global, regional and local levels. Many countries and organizations already prepare reports on environment and development, which review current conditions and indicate future trends. Regional and global assessments could make full use of such reports but should be broader in scope and include the results of detailed studies of future conditions for a range of assumptions about possible future human responses, using the best available models. It is vital that all such assessments be designed to map out manageable development pathways within the environmental and socio-economic carrying capacity of each region.

2. Objectives

17. The primary objective is to provide assessments of the current status and trends in major developmental and environmental issues at the national, regional and global levels on the basis of the best available scientific knowledge in order to develop alternative scenarios for the different time and space scales required for long-term policy formulation.

3. Activities

18. The following activities should be undertaken:

(a) Coordinate existing data- and statistics-gathering systems relevant to development and environment issues so as to support optimally the preparation of these assessments, e.g. data on resource depletion, import/export flows, energy use, health impacts, demographic trends, etc; apply those data obtained through the activities identified in programme area B towards environment/development assessments at the global, regional and local scales; and ensure that these assessments are made widely available in a form that is understood and responsive to public needs.

(b) Develop a methodology to carry out national and regional audits, as well as a five-year global audit, on an integrated basis. 16/ The standardized audits should aim to help refine the pattern and character of development, examining particularly the capacities of global and regional life-supporting systems to meet the needs of human and non-human life forms, as well as identifying areas and resources vulnerable to further degradation. This task would involve all the relevant sciences at the national, regional, and global level, and would be organized by government agencies, universities and research institutions, assisted by international organizations and United Nations bodies when necessary. 17/

4. Means of implementation

19. Financing and cost evaluation: this programme area will cost about US$ 35 million per year over the period 1993-2000, of which US$ 18 million will be needed from international sources.

20. Data and information: with regard to the existing data requirements under programme area A, support should be provided for national data collection and warning systems. This would involve setting up database, information and reporting systems, including data assessment and materials dissemination in each region.

D. Building up scientific capacity

1. Basis for action

21. In view of the increasing role the sciences have to play in dealing with issues of environment and development, it is necessary to strengthen the scientific capacity in developing countries beyond the critical level to enable them to participate fully in the generation and application of the results of scientific research and development to sustainable development. There are many ways to build up scientific and technological capacity. Some of the most important of them are: education and training in science and technology; assistance to developing countries to improve infrastructures for research and development which could enable scientists to work more productively; development of incentives to encourage research and development; and greater utilization of their results in the productive sectors of the economy. Such capacity building would also form the basis for improving public awareness and popularizing the sciences. A special emphasis is needed to enable developing countries to build up their own capacity to study their own resource base and ecological systems and manage them better in order to meet national, regional and global challenges. Furthermore, in view of the size and complexity of global environmental problems, a need for more specialists in several disciplines has manifested itself world wide.

2. Objectives

22. The primary objective is to improve the scientific capacities of developing countries, particularly with regard to:

(a) Education, training and facilities for local research and development;

(b) Doubling, by the year 2000, the number of scientists in those developing countries where their number is presently insufficient, particularly women scientists;

(c) Reducing significantly the exodus of scientists from developing countries;

(d) Improving access to relevant information for scientists and decision makers, with also the aim of improving public awareness of scientific knowledge;

(e) Involvement of scientists in regional and global environmental and developmental research programmes, including multidisciplinary research.

3. Activities

23. The following activities should be undertaken:

(a) Promote education and training of scientists, not only in their disciplines, but also in their ability to identify, manage and incorporate environmental values in research and development projects; ensure that a sound base in natural systems, ecology and resource management is provided; and develop specialists 18/ capable of working in interdisciplinary programmes related to environment and development, including the field of applied social sciences.

(b) Strengthen the scientific infrastructure in schools, universities and research institutions, particularly those in developing countries, by the provision of adequate scientific equipment and access to current scientific literature, for the purpose of achieving and sustaining a critical mass of highly qualified scientists in these countries. 19/

(c) Develop and expand national scientific and technological databases, processing data in unified formats and systems, and allowing easy access to the depository libraries of regional scientific and technological information networks.

(d) Develop and expand regional and global scientific and technological information networks, which are based on and linked to national scientific and technological databases and collect, process and disseminate information from regional and global scientific programmes; expand activities to reduce information barriers due to language differences. 20/

(e) Develop, strengthen and forge new partnerships among national, regional and global capacities to promote the exchange of scientific and technological data and information, as well as to facilitate technical assistance related to environmentally sound and sustainable development. This should be done through the development of mechanisms for the free exchange of basic research and the improvement and development of international networks and centres, including regional linking with national scientific databases, for research, training and monitoring. Such mechanisms should be designed so as to enhance technical cooperation among environmental scientists in different developing countries, as well as to have established strong national and regional alliances between industry and research institutions. 21/

(f) Develop links between existing networks of natural and social scientists and universities at the international level, in order to strengthen national capacities in the formulation of policy options in the field of environment and development.

(g) Compile, analyse and codify information on indigenous environmental and developmental knowledge treating it as intellectual property.

4. Means of implementation

24. Financing and cost evaluation: this programme area will cost about US$ 750 million per year for the period 1993-2000, of which US$ 470 million will be needed from international sources, keeping absorptive capacity in view.

25. Scientific and technological means include increasing and strengthening regional multidisciplinary research and training networks and centres and associated sustainable development and technology support systems in developing regions. 22/

26. Capacity building includes the following:

(a) Create conditions (e.g. salaries, equipment, libraries) to ensure that the scientists will work effectively in their home countries. Financial incentives are required to make the scientists stay rather than emigrate.

(b) Enhance national, regional and global capacity to carry out scientific research and apply scientific and technological information towards environmentally sound and sustainable development. This includes a need to increase financial resources to global and regional scientific and technological information networks to function effectively and efficiently in satisfying developing countries' scientific needs.

Notes

1/ The sciences conventionally embrace a wide field that is subdivided, for example, into the natural sciences (biology, physics, chemistry, etc.), the health sciences (medicine, toxicology, dentistry, public health, etc.), the engineering sciences (civil, chemical, sanitary, mechanical, etc.) and the social sciences (economics, sociology, demography, political science, law, etc.).

2/ The term "scientists" used in this document embraces those who practice in all the subdivisions mentioned in note 1.

3/ Land, oceans, atmosphere and their interlocking water, nutrient and biogeochemical cycles and energy flows all form part of the Earth System.

4/ The precautionary principle is an emerging concept of special significance to public policy. In essence, it asserts that there is a premium on a cautious and conservative approach to human interventions in complex environmental systems, avoiding as much as possible significant disturbance to those that are inadequately understood and appear susceptible to serious and irreversible injury. Applying this principle has the advantage of creating the opportunity for improving understanding of such systems so as to allow for continuous upgrading of the basis for policy formulation.

Notes (continued)

5/ The International Conference on an Agenda of Science for Environment and Development, held in Vienna in November 1991 to provide an input to the development of Science Agenda 21. The Conference, hosted by the Federal Government of Austria, was organized by the International Council of Scientific Unions (ICSU), in cooperation with the Third World Academy of Sciences (TWAS), and was sponsored by the European Science Foundation (ESF), the International Institute for Applied Systems Analysis (IIASA), the International Social Science Council (ISSC), the Norwegian Research Council (NAVF) with the Academy of Science and Letters, and the Stockholm Environment Institute (SEI). It brought together the understanding and assessment of some 250 members of the world's scientific community from nearly 70 countries on issues of highest priority for the future of environment and development.

6/ See sect. I, chap. 7 of Agenda 21, "Integration of environment and development in decision-making" (A/CONF.151/PC/100/Add.8).

7/ See sect. IV, chap. 2 of Agenda 21, "Transfer of environmentally sound technology" (A/CONF.151/PC/100/Add.9).

8/ These national studies are expected to involve countries in all major developing regions and would be coordinated by teams from the multidisciplinary science centres (see programme area D, paras. 21-26).

9/ See objectives of programme area A in sect. I, chap. 4 of Agenda 21, "Demographic dynamics and sustainability" (A/CONF.151/PC/100/Add.2).

10/ The elements monitored should include water, carbon, nitrogen, phosphorus and sulphur; the associated environmental fields should also be monitored. The most important substances in the life-support system, requiring greater scientific understanding, are:

(a) Water: large-scale land-atmosphere-ocean-freshwater interactions: the biological, geological and chemical interactions in the hydrologic cycle; closing the gap between terrestrial hydrol gy and ecology; water as a transport mechanism for pollutants and nutrients;

(b) Carbon: the biological controls involved; the strength of the oceanic carbon sink; and the fine-scale linkages of the carbon cycle with global climate models;

(c) Nitrogen: the consequences of nitrogen fertilization of terrestrial ecosystems, fresh and marine waters, for example on carbon storage in forests and oceans;

(d) Phosphorus: the effects of natural and human-mediated processes of phosphorus translocation and movement; the magnitude of natural sources and their possible exhaustion by mining;

Notes (continued)

(e) Sulphur: sulphate reduction following eutrophication in coastal waters; acidification in tropical countries; oceanic methyl sulphide fluxes.

11/ Examples include the Global Biodiversity Strategy (GBS); the Global Climate Observing System (GCOS), which includes the Global Ocean Observing System (GOOS) with its components on coastal zones; the programme on the Human Dimension of Global Environmental Change (HDGEC); the International Geosphere-Biosphere Programme (IGBP); the International Hydrological Programme (IHP); the Man and Biosphere Programme (MAB); the Global Change System for Analysis, Research, and Training (START), the World Conservation Programme's (WCP) World Climate Research Programme (WCRP); and other programmes, mentioned in other Agenda 21 chapters, that support mechanisms for the cooperation and coherence of research programmes on global change.

12/ As regards studies on biodiversity, by supporting, among others, the International Union for the Conservation of Nature and Natural Resources (IUCN), and the International Union of Biological Sciences/Scientific Committee on Problems of the Environment/UNESCO initiative. See also sect. II, chap. 7 of Agenda 21, "Conserving biological diversity" (A/CONF.151/PC/100/Add.20).

13/ See sect. I, chap. 4 of Agenda 21, "Demographic dynamics and sustainability" (A/CONF.151/PC/100/Add.2).

14/ These programmes could include the WCP/WCRP, IGBP, HDGEC, GBS, MAB and IHP.

15/ Some of these systems could include:

(a) Developing and expanding the Global Climate Observing System (GCOS), including the Global Ocean Observing System (GOOS). Funds could come from WMO, the Intergovernmental Oceanographic Commission, national Governments and non-governmental organizations;

(b) Supporting the Global Change System for Analysis, Research and Training (START): set up three centres and networks for research, training and observation, based in developing regions (North Africa, South-East Asia, and South America);

(c) The Global Environmental Monitoring System (GEMS) and Global Resources Information Database (GRID), coordinated by UNEP;

(d) New databases of terrestrial components and demographic and socio-economic variables must be developed;

(e) Expanding freshwater quantity/quality monitoring systems in developing countries;

Notes (continued)

(f) Developing a global observing system of rational management parameters for coastal zone resources.

16/ The audits would consist of data on the state of the environment's resilience and fragility, analysed to indicate trends in resource use and environmental degradation that act as warning signals, with the aim of guiding sustainable development. As a guide for the pattern and character of development, the audits should, through the use of carefully selected indicators of development, indicate the capacities of global and regional life support systems to meet the needs of human beings and other life forms, and identify those areas or resources which are vulnerable to further alteration. Such an audit would involve scientists from all relevant disciplines in every nation including, not least, the extensive knowledge of indigenous peoples and local communities. This work should be interdisciplinary and should involve community participation. These audits must be directed at critical zones where the capacity for human adjustment to live within natural means is manifestly undermined. Such criticality audits should be linked to enhancing the scope for human adjustment and aimed at uncoupling growth from environmental degradation. Specific activities could include:

(a) Making an inventory of ongoing assessment programmes in order to find out what supplementary activities are required for preparing a global audit;

(b) Examining the scope of local knowledge and traditional or well-established practices for incorporation into the auditing process, with a view to providing a perspective as to the coping mechanisms of local and national cultures in the face of environmental stress;

(c) Establishing representative task forces to help produce workable methodologies for such audits, drawing upon existing national and regional data gathering systems. Such task forces should have a special remit to advise on what additional data should be gathered, how such data can be made comparable, and in what ways this process can be made more intelligible to non-specialists;

(d) Identifying regions and/or people at special risk, where future development pathways will have to be chosen with the greatest care. A critical inventory of environmental and community vulnerability should become an important component of the global audit;

(e) Identifying and assessing environmentally critical areas, such as high impact of climate change; unusual diversity; inherent fragility; major human transformations expected for the landscape; high demographic pressures;

(f) Developing comprehensive regional assessments in which land and water development projects, and of national and regional policies (in trade, taxation, incentive, regulations, etc.);

Notes (continued)

(g) Determining the needs for scientific training for environmentally sound sustainable development.

17/ Many countries, institutions and United Nations bodies already periodically prepare assessments on environment and development, as well as state-of-the-environment reports, which could support this activity.

18/ Examples include atmospheric chemists, taxonomists and marine and freshwater scientists.

19/ This would include the introduction into school curricula at all levels of the appropriate material relevant to environment and development, including knowledge derived from women's experiences and indigenous groups. It would also entail the enhancement of the United Nations and non-governmental organization programmes and activities in capacity building in developing countries.

20/ United Nations bodies and other intergovernmental organizations should take the lead in developing and establishing such world-wide scientific and technological information networks; international non-governmental organizations should be encouraged to contribute in this regard.

21/ This would provide the basis for regional information clearinghouses that could facilitate technical assistance relevant to environmentally sound and sustainable development. This would also entail the enhancement of the South-South programmes of UNDP, UNESCO and the Third World Academy of Sciences.

22/ To complement existing and new activities, the functions of the regional networks and centres could include:

(a) Promotion of development and dissemination of environmentally sound technologies;

(b) Organization of science education and technical/managerial training;

(c) Support and coordination of national studies of pathways towards sustainable development;

(d) Linking with monitoring centres, and carrying out assessment of environmental and developmental conditions;

(e) Establishment and maintenance of information, monitoring and assessment systems and databases;

(f) Support and coordination of scientific cooperation among all nations in the region.